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Among the contents of next week's issue (No. 168) will be the following articles:

The Country Gentleman.
EDITORIAL.

Recent Botanical Discoveries in China.—VI.
By W. B. HEMSLEY.

Ilex lævigata. (With figure.)
By PROFESSOR SARGENT.

How We Renewed an Old Place.—V.
By Mrs. J. H. ROBBINS.

Crinum giganteum. (With illustration.)
By W. WATSON.

The paper will contain an illustration of Crinum giganteum, from a photograph, and a figure of Ilex lævigata, from a drawing by Mr. C. E. FAXON.

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The Douglas Fir.

THE Douglas Fir, from many points of view, is one of the most interesting trees of the American forest. Its monotypic character, its probably recent development in its distinct existing form, for the record of the ages has not divulged the secrets of its ancestry, the vastness of the region it occupies, its size and value to man, its beauty and capacity of adapting itself to new surroundings, all make the Douglas Fir an important inhabitant of the forests of western America—forests remarkable for the variety, size and value of the cone-bearing trees of which they are principally composed.

The Douglas Fir is distinguished from the true Firs or Abies by its petioled leaves, which, in falling, leave oval scars, by its pendulous cones with persistent scales, and by its seeds, which are not furnished with resin vesicles. It looks, moreover, in general appearance, more like a Hemlock than a Fir; it differs from the Hemlock, however, in the absence of the permanent, persistent bases of the fallen leaves which roughen the branchlets of all Hemlock-trees, and in its much larger cones, which may be always recognized by the large acutely two-lobed and long-pointed bracts extended beyond the scales. It can be readily known, too, by the flat, distinctly stalked leaves which are somewhat two-ranked by a slight twist at their base.

Where climatic conditions favor the growth of large trees, as they do in the humid region of western Washington and Oregon, or on the middle western slopes of the northern Sierra Nevada, the Douglas Fir often rises, in the course of five or six hundred years, to the height of three hundred feet, and forms a trunk ten or twelve feet in diameter above its enlarged base. The bark, which, like that of the Hemlocks, contains a considerable amount of tannin, is thick, deeply furrowed, and dark brown or red, or sometimes gray, in certain situations. Young trees, like young Spruces and Firs, are pyramidal in form, and retain their lower branches for a considerable time, sometimes even for two or three hundred years, when the individual finds sufficient space for their lateral growth, as it does occasionally when it has stood on the margin of the forest or on the steep slopes of some mountain cañon. Usually, however, the trees stand close together, especially in those parts of the country in which, under the favoring influences of a heavy rain-fall, they grow to the largest size, and then their great trunks tower upward, for a hundred feet or more, without a branch. The leaves are linear and generally obtuse, an inch or an inch and a quarter long, dark green and very abundant, covering the long, slender, graceful branchlets. The flowers of the Douglas Fir are produced from the axils of the leaves of the previous year, the males surrounded by conspicuous bud-scales, the females much shorter than their narrow bracts. The cones, which are subcylindrical, ripen the first year, and vary in length from two to four inches. The seeds are triangular, convex, and red on the upper side, flat and nearly white on the lower side, with short wings, broad at the base and acute at the apex.

The Douglas Fir extends from latitude fifty-five north, where it is found in the coast ranges and on the interior plateau of British Columbia, southward through all the region west of the Cascade and the Sierra Nevada Mountains to southern California. It is abundant in the Rocky Mountains from British Columbia far into Mexico, extending eastward to their eastern slopes in Montana, Wyoming, Colorado and Texas; it is common on the Wahsatch and Uintah Mountains in Utah, but is unknown on the ranges of the great basin and on the eastern slopes of the Sierra Nevada. It is most abundant and reaches its greatest size on the low glacial plain which surrounds the shores of Puget Sound. Here the Douglas Fir can be seen in all its majesty. It is the most common tree in a forest in which trees stand so close together that the traveler can barely push his way between their mighty trunks which support far above his head a canopy so dense that the rays of the sun never pierce it. Through these dark and awful shades the most thoughtless man cannot pass without experiencing that sense of solemnity and awe with which the human mind is impressed when confronted by Nature in her grandest manifestations.

The Douglas Fir grows almost as large on some of the California mountain-slopes as on the shores of Puget Sound, and it is one of the remarkable things about this tree that it flourishes at the sea-level and on high mountains. In California it often grows to a great size at elevations varying from 6,000 to 8,000 feet above the sea, and sometimes ascends on the Rocky Mountains of Colorado to even higher altitudes, although it is always smaller and less valuable as a timber-tree in the dry interior portions of the continent than in the moist coast region.

Other trees of the Pacific forest produce more valuable wood than the Douglas Fir—the Port Orford Cedar, the Sugar Pine and the Redwood. These trees are confined to a comparatively small region, however, and the Douglas Fir, in view of the great territory over which it has spread, must be considered the most important timber-tree of western America, and of no other tree is there now standing such a body of valuable and available timber. The wood of the Douglas Fir is hard, strong and durable; it may be recognized by the numerous spirally marked wood cells which distinguish it from the wood of allied conifers. The small cells which are developed in the wood of conifers at the end of the growing season are very numerous, and form broad bands which often occupy half the width of the layers of annual growth. These bands of small cells are dark-colored and conspicuous, and become hard and flinty with exposure, making the wood of this tree difficult to work except when it is freshly cut. Some trees produce light red and some yellow wood, and individuals vary to a much greater degree than those of most other trees in the time required for their sap-wood to turn into heart-wood. The yellow wood is closer-grained and is considered much more valuable than the red wood. Lumbermen recognize

these two varieties and pretend to be able to distinguish the trees which produce them, an assumption which still needs demonstration. The conditions which lead to the formation by the same species of such different wood are not well understood; in the case of the Douglas Fir they are probably due to soil and elevation, and, in part at least, to the age of the individual. The wood of the Douglas Fir is known in commerce as red fir, yellow fir and Oregon pine, the last name belonging, however, more properly to the wood of the Yellow Pine (*Pinus ponderosa*) of western America. It furnishes the principal product of the immense saw-mills situated on Puget Sound, and is manufactured, besides, wherever forests of this tree exist; it is used for all sorts of building purposes and for construction, railway ties and fuel.

The Douglas Fir was discovered late in the last century by Archibald Menzies, Vancouver's surgeon and naturalist on his voyage of discovery; and a few years later Lewis and Clark found it in Montana during their transcontinental journey. David Douglas rediscovered it on the Columbia River in 1825 and introduced it into England; and it is the name of this bold and enterprising botanist which has become associated with this tree, although, unhappily, it cannot bear it in the language of science. No tree is more unfortunate in its name; and there are few instances where the application of the rules which govern botanical nomenclature has produced a more unsatisfactory result. Lambert, who first named the tree, called it *Pinus taxifolia*, from the fancied resemblance of the leaves to those of the Yew-tree; then Lindley, disregarding Lambert's specific name, named it *Abies Douglasii* in honor of its rediscoverer. Carrière, recognizing the characters which separate this tree from the true Firs, coined for his genus a bastard word, half Greek and half Japanese, and called it Pseudotseuga, a perfectly improper name, as it has little in common with Tsuga, the Japanese name for the Hemlock. Carrière retained, however, Lindley's Douglasii, calling the tree *Pseudotsuda Douglasii*, but as Lambert's specific name is the oldest, the Douglas Fir must be known as *Pseudotsuga taxifolia*, a name bad in every way, and especially bad in its failure to recognize the name of Douglas, which, more than that of any other man, should be associated with it.

The Douglas Fir has proved itself in cultivation to be an ornamental tree of great value. The largest specimen in England is already more than 110 feet high, with a stout trunk furnished with branches from ground to tip, and showing no signs of diminishing vigor or beauty. The earliest attempts at cultivating the Douglas Fir in the eastern states were not successful; the trees raised from seed, gathered in the mild and humid climate of the north-west or in England, first planted here were unable, except in exceptional positions, to support our climate for any length of time. The late Dr. Parry, however, in 1862 discovered the Douglas Fir growing on the eastern slopes of the Rocky Mountains of Colorado in a climate distinguished by the severity of the cold of winter and by the drought of summer; he sent seed to the Botanic Garden at Cambridge, and the plants raised from this seed have proved hardy in the most trying situations in New England. Some of these trees are now more than twenty feet high, and although it is too soon to speak with anything like certainty in the matter, there is reason to hope that they will grow to a large size and retain their beauty for many years.

Much attention has been given to the Douglas Fir of late years as a subject for forest-planting in Europe, although the best authorities on such matters do not yet agree as to its value for this purpose. Large experimental forest-plantations are made every year, especially in some parts of Germany, where some forest-experts believe that the Douglas Fir is to rival and finally replace the Larch in Europe as a timber-tree. It has the merit of growing with surprising rapidity and of producing a large amount of timber in a comparatively short time. Few coniferous trees grow as rapidly as the Douglas Fir, and it is not uncommon to see self-sown seedlings in Washington and Oregon producing, when they stand very close together in good soil, annual shoots twelve feet long.

A remarkable form of the Douglas Fir, distinguished by its large cones, occurs on the San Bernardino Mountains, in California. It has been considered a variety of the typical tree, and by some botanists a second species—a view supported by the fact that no intermediate forms connecting it with the type have been found, while in the region north and south of that occupied by this large fruited tree the typical Douglas Fir abounds.

The beauty of the trunk of the Douglas Fir and the spread of its great buttress-like roots are shown in the illustration on page 211. It is from a photograph by Notman, of this city, and represents a tree of medium size standing in the park at Vancouver, in British Columbia.

A California Cemetery.

THE most beautiful cemetery in California, the one that is more nearly what a cemetery should be than any other in the state, is Mountain View, near Oakland. It is a nest in the foot-hills, shut out from harsh winds, and so varied in surface that when Mr. Frederick Law Olmsted drew the plans, about 1865, he is said to have expressed the greatest pleasure in the "opportunities for landscape-gardening" that the tract afforded. Owing to unfortunate complications, Mr. Olmsted's plans for the University grounds were neglected, but the Mountain View Cemetery is his sufficient memorial on the Pacific coast.

For twenty-five years a group of prominent Oakland men have worked together developing a beautiful garden of the dead. In some portions there is too much expensive and grandiose monumental glitter, but for the most part good sense and modesty prevail, and trees, vines, flowers and running water unite to make a quiet loveliness. This very March morning as I sat in a perfect tangle of trees, Roses and wild Blackberry-vines in the winding valley that crosses the grounds from hill to hill, I heard the shrill piping of California quail in the copse, and presently saw a very gentle-minded "cottontail" rabbit a few yards away meditating on the phenomenon of a reporter's pencil and pad. Looking up I saw three humming-birds poised above the Cherry-blossoms of some old trees in a half-acre orchard planted by some pioneer, and left by the landscape-gardener to give a pleasant homely effect to this part of the grounds. All the while birds kept singing everywhere—golden orioles, brown robins, meadow larks, hosts of blackbirds in the tree-tops. Such places as this are in all the ravines; the rounded hills are planted with flowers and shrubs, but most of the trees are set in the richer soil below.

The late superintendent, Mr. William Collins, was a man of much executive ability, a Scotsman of the Scots, and absolutely devoted to the enterprise. He made every square rod of the land produce growth and beauty. Many flowers bloom even in midwinter at Mountain View, and miles of Rose borders, in which all the newest sorts are represented, extend along the drives. Masses of Iris, Lilies and Daffodils, and the simple old-fashioned flowers that appeal to every heart, remain to illustrate the late superintendent's methods. In the way of trees he planted great numbers of Magnolias, English Laurels, Oranges and the finer broad-leaved evergreens, with Acacias and the rarer conifers, but the latter have been but sparingly used, except in a few bold masses. An almost continuous belt of Eucalypti, Monterey Cypresses and Pines sweeps around the western and southern sides of Mountain View and shuts out the city beyond. Higher hills lie to the east, and over these the cemetery can be extended whenever it is necessary to have more room. In this wilder region there are many ledges of rock that stand out of the hill-side like Cyclopean walls. A few similar ledges are within the present limit of the cemetery, and are covered with vines and rock-plants, sach as Cacti, Cistuses and the low succulents. Several large boulders of trap-rock have been used as monuments, and the possibilities in this direction of the castle-like ledges of the adjacent tract are certainly very striking. One of the rock-piles stands at the head of a ravine overlooking the whole valley, and covers a parallelogram of fifty by a hundred feet in extent, and rises forty feet above the slope. Five or six good specimens of *Quercus agrifolia* grow upon the top of the splintered ledge, and it would be easy to hew out a vault beneath their roots, if one chose, and to cover the whole pile with vines. Such a "memorial mound" would be far more in keeping with Mountain View, as it was planned, than the stateliest mausoleum of polished Rocklin granite or Amador

marble. The late superintendent chose for his own monument an isolated moss-grown boulder, upon which an inscription will be placed, but nothing else will be changed about it.

I spent an hour in the more cultivated parts of the cemetery a few days ago, and was particularly interested in studying the blooming plants there. Mountain View, as I have already said, is one of the most sheltered nooks in the region of San Francisco Bay, and the climate is surprisingly mild. The Orange and Lemon grow and fruit there, and Roses bloom earlier there than anywhere else in the district. On the 20th of March there were Apple, Peach, Plum, Almond and Cherry in the old orchard; long rows of English Laurel; about thirty kinds of Roses, with Japan Quinces, Spireas, Acacias, with immense clumps of Irises, and white and rose-colored Peonies on the hill-side. Nasturtiums, self-sown last autumn, and seedling French Marigolds mingled with wild Poppies and early Lupines, and in many a nook the native flowers of the coast range still hold their own, while the slopes beyond are splendid with spring annuals in full bloom. This is the cemetery of which the lamented E. R. Sill wrote in his poem entitled "Home":

> There lies a little city in the hills;
> White are its roofs, dim is each dwelling's door,
> And peace with perfect rest its bosom fills.
>
> There the June mist, the pity of the sea,
> Comes as a white, soft hand and reaches o'er
> And touches its still face most tenderly.
>
> Unstirred and calm, amid our shifting years,
> Lo! where it lies, far from the clash and roar,
> With quiet distance blurred as if thro' tears.

Such is the spirit of the place, and, as time goes by, that spirit will ripen as its trees grow old and all its bare rocks become more weather-stained and moss-grown.

Niles, Cal. *Charles Howard Shinn.*

The Sap and Sugar of the Maple-tree.—III.

THE linguistic evidence of the *Anthropologist*, introduced by Mr. Henshaw and continued by Mr. Chamberlain, is interesting as well as comprehensive, and not only valid, but perhaps as convincing as the narrations of history.

It reaches back far beyond the advent of that class of European travelers who are said to tell stories by inclination and truth by accident. It is independent of the romances of discoverers and of the neglect of historians. It draws out the history of the Sugar Maple and its products from the very elements of the Indian language. It also takes account, as it should, of their myths and legends, and especially of their solemn rites and celebrations as illustrating past events in ceremonies and figures as by a sign language, through which preceding ages are yet telling events which transpired in their times. This argument from language, in its simplest form, as stated by Mr. Henshaw, is essentially this—namely, "That if investigation shows that the Indian name for European sugar is the same as, or a derivative from, the Indian name for maple-sugar, and especially if the name of maple-sugar is derived from the Maple-tree, we can hardly expect to find better evidence of the fact that maple-sugar was truly an aboriginal production."

For if sugar had been introduced to the Indians by Europeans, the Indians would naturally have adopted the name or sounds under which the new article came to them, as nearly as their word sounds would allow, as is found to have been quite a constant result in respect to various new objects introduced to them under foreign names, of which many illustrations might be given. The exceptions to this rule seem to be in the case of novel animate objects, impressive at first sight, to which they sometimes give a name of their own coining, compounded from the name of a familiar object with a new and characteristic affix.

A few of the facts brought out in the articles referred to, as to the legends and sacred rites of the Indians and the signification of the names relating to the Maple-tree, have been selected for notice here as illustrating more clearly the way in which the investigation has been commenced, and the method in which it will be carried on.

We are told that among the Algonquian tribes there were many myths and legends relating to the Maple-tree.

For the Chippewas, an "Ovid"-like "metamorphosis" of Nishosha, the magician, took place, and in a few seconds he stood a tall and stiff Maple-tree.

Then, too, a certain month of the year was called by some Indians the "Sugar Month," or "Sugar Moon," which could hardly have been unless sugar-making were aboriginal.

Others believed that the snow which melted in the spring furnished the trees with sap—the snow being only "the dripping oil" of the celestial bear slain by the hunters in the winter-time.

Another evidence of the antiquity of their sugar-making is in their ancient religious festivals instituted to the Maple, as the Maple Dance, and the sugar festival in the spring, when the old sugar and the new are mingled by the medicine-man and the aid of the Great Spirit is invoked. Such a conclusion is fully sanctioned by A. de Candolle, who says: "Rien ne montre mieux l'antiquité et la généralité, que cette fusion intime avec les usages religieux d'anciens habitants."*

By way of word illustration, it is stated that the Ojibwa word for maple-sugar is "*Zeence-zee-bah-quod*," which is pronounced *Sen-se-pah-qwot*. Derivation: *Zeence-zee*, drawn from; *bah-quod*, wood or stick, referring to the sap drawn from the tree.

Enin-ah-tig weesh-ko-bun is also employed. Derivation: *Enin*, man; *ah-tig*, wood or stick [tree]; *weesh-ko-bun*, sugar—hence, man-stick-sugar.

"The etymology here," Mr. Henshaw states, "contains a metaphorical reference to the manner in which the sap flows from the tree, as curious as suggestive."

The name so well accords with the natural growth and polysynthetical character of Indian words, and is so paralleled by names of water-falls in foreign countries and languages that it carries in itself the evidence of its origin.

The far-extended Algonquians have corresponding names whose origin seems to have been similarly derived, as Hard Maple, *An-in-a-tik;* Sugar, *Si-si-pak-wat;* Maple-sugar, *An-in-a-tik si-si-pak-wat.*

The Ojibwa form for Sugar Maple, *Nin-au-tik*, seems without doubt to be the same as *Enin-ah-tig*, "*e*" being dropped for easy pronunciation, and to mean not, as Tanner suggests, "*our* tree," but simply, *Enin*, man; *ah-tig*, tree, stick; hence *Nin-au-tik*, man-tree, again.

No doubt, as Mr. Henshaw suggests is probable, "Tanner's etymology is faulty" in this case. The only other etymology which Mr. Chamberlain considers of any weight here is that of Cuoq, who explains *in-in-a-tik* as meaning "*the tree*" par excellence. Yet in this he defers quite too much to Cuoq's authority, and has to regret that the doing so "seems to cast little light on the real question."

If Mr. Chamberlain, to use his own language, "would make the word in question signify 'man-tree,' either from a conception of the tree as man-like (with respect to the sap probably) or from some myth such as that noted above," it seems as if his path here would be full of light. With all respect for the lexicography of Cuoq, the question here is one in which considerations of anthropology are paramount to those of a doubtful etymology.

But whatever may be obscure or uncertain in minor details of the various words of the many divisions of the Indian race, still, as a rule, in the long list of names for the Maple-tree, Sugar-tree, maple-sugar and for sugar *per se*, not a name (with a single exception) as yet is found which resembles, or has relation to, any European name for sugar. The single exception in the case of the Cree language establishes the general rule, from the fact that it is to white (French) sugar only that they give a special name—*So-kaw*—evidently their adoption into their own tongue of the French word *Su-cre* by its nearest kindred sound.

To place the subject more clearly before the eye of the reader, a few of the names in question taken from the *Anthropologist*, and as used by different families or tribes, are here annexed:

INDIANS.	HARD MAPLE.	SUGAR.	MAPLE-SUGAR.
Ontarios	*An-in-a-tik.* Man-tree.	*Si-si-pak-wat.*	*An-in-a-tik Si-si-pak-wat.* Man—tree—sugar.
Two Mountains	*In-in-a-tik.* Man-tree.	*Sin zi-pak-wat.*	*Sin-zi-pak-wat.*
Another settlement	*Nin-a-tik.* Man-tree.	*Sins-hab-ak-wat.*	*Nin-a-tik Sins-hab ak-wat* Man—tree—sugar.
In Cree	*Sisi-hask-wat-at-tik.* Maple-tree.	*Si-i-hask-wat.*	*Si-i-hask-wat.*
Ojibwa	.....	.....	*Zeence-zee-bah-quod,* pronounced *Sen-se-pah-qwot.* Expressed from tree.
Omaha and Ponka	*Ja-ni-hi.* Wood—sap—tree.	*Jan-ni.* Wood—sap.	
Winnebago	.....	*Ta-ni-ju-ra* Tree-water, or rain.	
Tuscarora	.....	*U-ren na-kri.* Tree—sap.	

* L'Origine des Plantes cultivées, p. 315. Paris, 1883.

A mere inspection of these names seems to make clear what has been stated, that not only were they not derived from any European name or description of sugar, but that, whatever may be the difference in the dialects or language of different tribes, they all agree in referring sugar to the Maple-tree, and to the flow or rain of sap which runs from it so freely in the spring. And when we estimate the natural force and internal pressure of the sap when most active in trees, the suggestion that the idea of pressure exerted to express the sap applies better to the Sugar-cane than to the Maple, loses all its force. It is true that more extended information as to Indian names for the Maple and for sugar is desirable, and it is to be hoped that the investigation of them will be pursued through all the languages of the tribes within the habitat of the Sugar Maple. But whether it takes place sooner or later only one result can be anticipated.

The historical facts adduced show maple-sugar to be a product we owe either to the Indian or to the French. But the French, whether clergy or laity, always in their writings treat the sap and the sugar as novelties to be explained to their correspondents; and no claim on the part of the French to its introduction by them has yet been found. On the contrary, both the cleric Lafitau and Bossu the chevalier explicitly agree, though writing at different periods, in ascribing its origin to the Indians themselves—a conclusion which it is difficult, if not impossible, to avoid.

The linguistic evidence, so far as brought out, is remarkably consistent, and points with equal directness and force to the same conclusion.

As the evidence of history and of language thus combine to support the same proposition, it seems only reasonable to accept their decision, that it is, after all, to the Indian that we are indebted for the important and national product of maple-sugar.

Providence, R. I. *William D. Ely.*

Winter Studies of the Pine Barren Flora of Lake Michigan.—III.

THE Huckleberry and the Blueberries are objects of interest in their winter appearance. Four species, representing two genera, are found here. All have reddish or purple branches, whatever may be the color of the bark in summer. The Black Huckleberry (*Gaylussacia resinosa*) often looks rusty, even to the smaller twigs, imparting to the shrub, as a whole, a sombre look. It branches freely, with an irregular, straggling spray. Many of the twigs are red or reddish, and the small buds on them of a brighter red. It averages about two feet in height, but attains three or four feet in damper and richer soils, equaling smaller stems of *Vaccinium corymbosum*, near which it may be growing. It is very abundant on the sand-ridges, especially where they are open, and the Pines have given way to the Oaks. The Low Blueberry (*Vaccinium vacillans*) grows along with it, and is about as common. It is not quite as tall, averaging a foot and a half, and is a prettier plant in its winter garb. The main stem has a smooth, light-gray bark, frequently greenish above, crossed and checked with fine cracks, forming a mesh of dark lines. The branches are short and spur-like, somewhat regularly arranged around the stems. They start out horizontally, but soon curve upward. The fresh-grown twigs and smaller parts of the branches are usually pale red or pink, and contrast very clearly in color with the body of the plant. Such branches, as well as those of Gaylussacia, look as if they had been dipped to a certain depth in a red dye, the line of division between the red and the gray bark being abrupt and sharply drawn. The bud-scales are of a darker red than the twigs, and the buds near their ends prominent. In the Dwarf Blueberry (*V. Pennsylvanicum*) the whole plant is reddish purple, or the lower part of the stem may be green and the top colored. Its height is about a foot; the branches are irregular and ascending, making an acute angle with the stem, and the buds are quite large, with scales bright-colored like the bark. The Dwarf Blueberry generally grows in damper places than the two just mentioned, fringing the open places occupied by sloughs or wet ground, taking the border-land between the wet and the dry, where it thrives best. But the three grow together in many localities, and, though no close lines of habitat can be drawn, they prefer those mentioned, and are about equally abundant. The largest of the Vacciniums, *V. corymbosum*, the Swamp Blueberry, is of limited range, being found on the borders of a few of the ponds and Cranberry-marshes. The canes are from three to seven or eight feet high, the thickest of them barely an inch in diameter, the shrub being considerably smaller than those found in the Tamarack swamps, which are its more usual habitat. The grayish, flaky, outer bark of the older stems is easily detached, coming off in spots and exposing the brown inner bark, giving them a mottled look when this occurs. The new shoots and twigs are red, the longest of them straight and brier-like, though with a bark more shining than that of the Dogwoods, in this respect resembling some of the Willows. The bark of this fresh growth is slightly roughened by countless specks of a lighter color, appearing like minute blisters, and contributing a pretty feature to the comely shoots.

With the Dwarf Blueberry, but oftener in wetter ground, will be seen the purple stems of the Running Blackberry (*Rubus hispidus*). They are very slender, and clothed with an abundance of weak, reflexed prickles. The leaves are quite persistent, becoming dark purple in autumn, and clinging to the vines in winter. Sometimes, when the winter is mild, the leaves of the Strawberry persist, turning purple like those of the Running Blackberry, and appear quite fresh when in sheltered spots where they are partly covered by fallen leaves, or protected by the branches of some low-growing Pine.

Englewood, Ill. *E. J. Hill.*

New or Little Known Plants.

Encephalartos Frederici Guilielmi.

THIS remarkable and extremely ornamental Cycad was introduced into England in 1877, when stems of it were forwarded from Grahamstown to Kew as "a new species of Encephalartos, with fronds like those of *Cycas revoluta*, the crown of the stem clothed with wool to the thickness of about an inch." The specimen represented in the illustration on page 209 was one of these. Soon after its arrival it developed a whorl of female cones, each about nine inches long, which, however, had to be removed to save the life of the plant. So far as I know, it has not attempted to flower since. It is now a handsome specimen, the stem being five feet in circumference, nearly three feet high, crowned with one hundred and seven leaves, each three feet long, rigid and spineless. The pinnæ are narrow, set closely together, conduplicate, gray-green and spine-tipped. A whorl of new leaves is produced every year, the last whorl consisting of no less than thirty-four full-sized leaves. The diameter of the head is seven and a half feet.

There are about a dozen species of Encephalartos, all natives of tropical and southern Africa. They are all represented by living examples at Kew, where many of the specimens are of very large size. *E. caffer*, *E. Altensteinii* and *E. horridus* are veritable giants in the Palm house, the conditions in which appear to be peculiarly suitable to this genus. *E. brachyphyllus* and *E. Ghillinckii*, both natives of the same region as *E. Frederici Guilielmi*, namely, Kaffraria, and both near allies of that species, may be grown in an ordinary greenhouse if kept a little dry in winter. All the other kinds are happiest in a sunny stove.

The cones of some of them are very ornamental, the female cones of *E. villosus*, another south African species, being, when ripe, at least twice as large as the largest pine-apple, the color of the large, fleshy scales being rich, orange-yellow, that of the nut, like fruits half-hidden beneath them, a brilliant scarlet. In the woods along Buffalo River, near King William's Town, this species is as plentiful, and produces a somewhat similar effect to that of the male fern in the woods of England. The fruits, if allowed to remain till they ripen, are destroyed or greedily eaten by the monkeys and large birds, but in the vicinity of towns they are favorite ornaments with the colonists, who cut the cones in their green state and take them home to ripen.

Some of the species produce very large cones, as, for instance, *E. Altensteinii*, recently figured in the *Botanical Magazine* (t. 7162). This has a female cone eighteen inches long by thirty inches in circumference, the fleshy scales packed closely together, and orange-yellow in color. A male plant at Kew developed two cones last year. Sir Joseph Hooker mentions a huge specimen of this species which was seen by a Mr. Sanderson "in a secluded valley in Natal, about thirty miles from the sea, the trunk of which measured sixteen feet before branching, and twenty-five to the crown, which was formed of five branches."

For large conservatories these plants have a special value, being bold and handsome, the fronds exceedingly durable and not easily injured, whilst they are so robust in constitution that it takes a considerable amount of bad treatment to affect their health. In the southern states of America most of them

would probably flourish if planted in the open. Any one who has seen these plants at their best must admit that, whether among large Palms in conservatories, or planted in masses or as single specimens out-of-doors, they produce a particularly grand effect. Some of the specimens at Kew must be something like a century old. That here figured, for instance, had a stem as much in diameter, and only a few inches shorter, thirteen years ago than it has now, although it has been in vigorous health almost from the first. The photograph from which this illustration has been prepared was taken in 1883.

Kew. *W. Watson.*

Foreign Correspondence.

London Letter.

LACHENALIAS.—Mr. Moore, of the Glasnevin Botanical Gardens, Dublin, read a valuable paper on these plants and their cultivation in London last week. So far as I am aware, nowhere are Lachenalias grown so successfully as at Glasnevin, the spikes of flowers produced there being almost as strong as Hyacinths and the substance of the flowers almost as great. Such kinds as *L. tricolor*, *L. Nelsoni*, *L. quadricolor*, *L. aurea*, *L. pallida*, *L. orthopetala* and *L. pendula* Mr. Moore can produce with spikes a foot long, the stalks as thick as a man's little finger, and the flowers correspondingly large. As commonly seen, Lachenalias are not good garden plants, but no one who saw the fine examples with which Mr. Moore's lecture was illustrated would deny to them a place among the very best of early spring-flowering bulbous plants for the greenhouse. A considerable number of hybrids have been raised, some of them by Mr. Moore himself, the best of them being *L. Nelsoni*, which was obtained by crossing *L. aurea* with *L. tricolor* about ten years ago. There appears to me to be in Lachenalias material which in capable hands would soon produce a race of most valuable garden plants. The splendid and varied children of the comparatively poor *Hyacinthus orientalis* may be pointed to as examples of what has been done by selection, etc., with a plant very closely related to Lachenalias.

HÆMANTHUS MULTIFLORUS.—This is one of the most beautiful of the thirty-eight species of Hæmanthus now known, its large umbel of rich crimson flowers with golden anthers being very handsome. In one of the stoves at Kew there is a plant of it now bearing an umbel eight inches through composed of about sixty flowers, each an inch and a half long, with linear reflexed segments, and stellately arranged stamens one and a half inches long. The scape is scarcely a foot in length, and it precedes the leaves, springing from the centre of a globose bulb three inches in diameter. This and *H. Kalbeyeri*, *H. Abyssinicus*, *H. tenuiflorus* and *H. filiflorus* are all alike or very nearly so. It is quite tropical, and should not be kept dry at any time. *H. multiflorus* was introduced many years ago, but it has never found much favor, because of its bad behavior, as a rule, under cultivation. In this respect it is inferior to *H. Catherinæ*, *H. cinnabarinus* and *H. magnificus*, which are equally beautiful and at the same time easily kept in health.

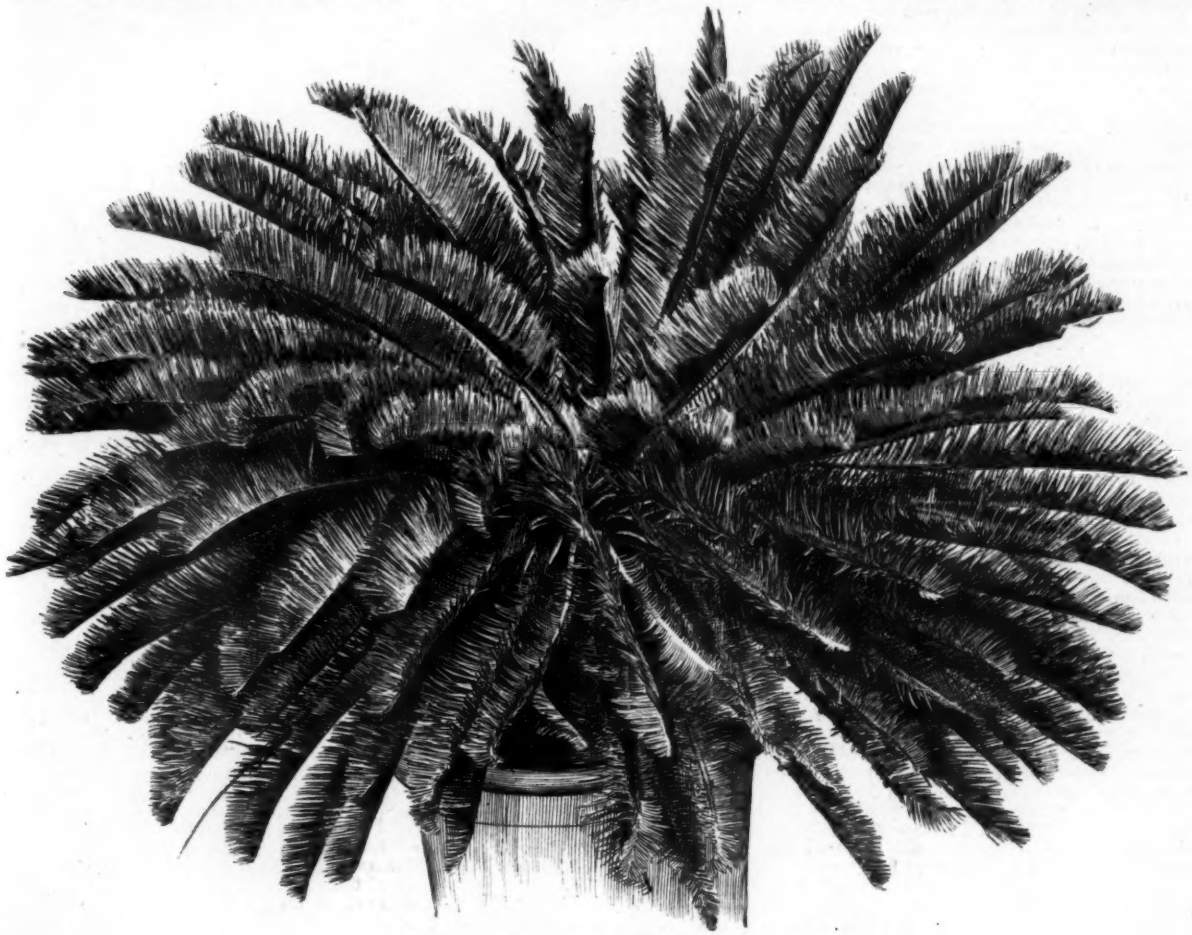

Fig. 37.—Encephalartos Frederici Guilielmi.—See page 203.

GREENHOUSE RHODODENDRONS are represented at Kew this month by a considerable number of Himalayan species, about half a dozen of the Javanese hybrids, and as many forms of *R. formosum*. The queen of the lot, in regard to size, elegance and purity, is *R. Rucklandii*, of which there are two large plants in full flower in the temperate house, their loose umbels of enormous saucer-shaped, pure white flowers being very handsome, fragrant and durable. A hybrid raised at Kew between this and *R. Hookeri*, and flowered several years ago, is noteworthy on account of its having stood the severe weather of the past winter much better than either parent, and as well as the hardiest of the Himalayan species of this genus. The Javanese kinds are flowering well in the temperate house, where, apparently, they are as much at home as the Camellias,

Acacias and hard-wooded plants generally. The "Andean Rhododendron" (*Befaria glauca*) is also flowering now, and is much more attractive in color and number of flowers in a raceme than it has been before. This dwarf and evidently free-flowering plant ought to become a favorite for the greenhouse. Seedlings take a long time, about ten years, to grow to flowering age, but cuttings or grafts from flowering plants would no doubt bloom when only a year or two old. A hybrid raised many years ago from *R. Dalhousiæ* and *R. formosum* is a very beautiful and free-flowering greenhouse plant. It is not unlike R. Countess of Haddington and *R. Gibsoni* in habit and flower, and it closely resembles the true *R. Dalhousiæ*, a Himalayan species scarcely known in cultivation. The flowers are deeply campanulate, over three inches in diameter, and white tinged with rose. They remain on the plant several weeks.

Epiphyllum Gærtneri.—This plant was introduced into notice by the Belgian nurserymen three years ago under the names of *E. Russellianum*, var. *Gærtneri*, and *E. Makoyanum*. It was at first thought to be a cross between an Epiphyllum and a Phyllocactus, but it has since been shown to be an introduction from Brazil, and is looked upon at Kew as a third species of Epiphyllum, the other two being *E. truncatum*, of which numerous varieties are known in gardens, and *E. Russellianum*. The new one differs from these in having flowers of about twenty lanceolate petals varying in length from half an inch to two inches, and arranged regularly round the cluster of short stamens, so that when fully expanded each flower is in form like a Phyllocactus; the color is a brilliant orange-scarlet. The leaf-like branches are similar in form and arrangement to those of *E. truncatum*, each joint being about two inches long by an inch in width, the margins dentate and the upper end clothed with a brush-like tuft of stiff brown hairs half an inch long. Grafted upon a thin-stemmed Cereus this species forms in a year or so a sturdy standard, with a head a foot through, and it produces two or three flowers on the end of every branch. The plant at Kew has a dozen flowers fully open, and is a beautiful object.

Shortia galacifolia has been exhibited in flower several times this year at plant shows in London. It has proved quite hardy in England, growing freely and retaining its foliage all the winter, in spite of severe frost and poisonous fogs; in spring it sends up numerous flowers, and when at its best it is a really pretty rock plant. The leaves assume a deep, glossy, chocolate color in spring.

The Blue Himalayan Poppy, *Meconopsis Wallichii*, has succumbed to the severe weather of the past winter, although previous winters of the last eight years have not been too much for it. Luckily, we have a batch of young plants which had been placed in a cold frame for the winter, and these are quite safe. At Kew this splendid plant is one of the annual attractions of the rock garden, where it is grown in a damp, somewhat sheltered and shaded position, in a bed of peat. Here it grows well and produces, in July, its tall spikes, a yard or more high, of rich, purplish blue, poppy-like flowers. Seeds are sown every year, and the young plants grown on in pots to take the place of those which die after flowering. This plant is one of the many beautiful garden subjects which come from the high Himalayan Alps, where, in Sikkim, Sir Joseph Hooker found it at an elevation of 10,000 feet. Six other species are found in the same region, three of which are in cultivation at Kew. They are, however, not nearly so useful in the garden as *M. Wallichii*.

Orchids.—The meeting of the Royal Horticultural Society this week was remarkable for the number of rare and beautiful Orchids exhibited, chiefly by Sir Trevor Lawrence, the president of the society, Baron Schrœder and Messrs. F. Sander & Co. The collection of Masdevallias from Burford Lodge was most beautiful, and comprised some very fine varieties of *M. Harryana* and *M. Lindeni* and others. In Baron Schrœder's group there were the following: *Lælia Digbyana Mossiæ*, with two large flowers on a raceme. It will be remembered that when this grand Veitchian hybrid flowered for the first time, two years ago, it bore only one flower. *Cypripedium Morganiæ*, a fine specimen of this most beautiful hybrid, bearing twenty-two fine flowers. Three varieties of *Odontoglossum crispum*, named, respectively, *Stevensii, Wolstomholmiæ* and *Veitchianum*, and bearing each a strong raceme of flowers. These are three of the very finest varieties known. *O. hybridum dellense, O. Ruckerianum, O. Cervantesii moralla; Cattleya Laurenciana* and two varieties with a lilac shade in the segments, named *Vinckii* and *concolor; Lælia Jonghiana, Cymbidium Devonianum* and the hybrid *C. eburneo-Lowianum. Masdevallia Lindeni* was represented by a splendid specimen bearing over a hundred flowers. So fine a collection of Orchids has rarely been seen anywhere. Messrs. Sander & Co. sent their new *Dendrobium Venus*, described by me last week; *Maxillaria Sanderiana, Scuticaria Hadweni, Zygopetalum graminifolium*, with some beautiful Odontoglossums and Cypripediums, several of the latter being new hybrids. These fortnightly meetings in London have grown very much in interest and importance recently. Every plant of anything like special horticultural interest, and which happens to be in flower at the time of the meeting, is sent for exhibition, contributions coming from even the most distant parts of the country. In time the progress in English horticulture will be focused at these meetings of the old Society.

London. *W. Watson.*

Cultural Department.

Earliness in Vegetables.

Whatever criticism we may make on the eagerness of buyers for the earliest vegetables, and however philosophically we may ourselves be disposed to wait for the better things that come later, it is of prime importance for the commercial grower to be first in the market with each of his specialties. The best exposure and the warmest soil—often much too warm for later crops—that can be obtained are seized upon, and the competition between gardeners often has the excitement of a game, and success gives an exhilaration out of proportion to the mere money-value of the result.

Usually, the gardener depends upon the seedsman in this matter; but nearly all gardeners of experience and skill have some specialties of which they grow the seeds themselves, and do not let them out of their hands without a liberal *quid pro quo*. In this way originate many of the new sorts put forward in our seedsmen's spring catalogues, and so severely commented upon later by purchasers of little experience. The older heads do not expect many real bonanzas, though they make many tests. It seems to me worth while to ask ourselves what we really have a right to expect of such offerings. Nothing can be more unwise than to condemn them all untested, unless it be to expect a large gain in testing them.

Every old gardener must be aware that our existing varieties of garden vegetables are not only better grown, but better in themselves—in some lines far better, and offer a much wider choice than they did, say thirty or even twenty years ago. Now, how has this advancement been realized? It is safe to say that, while some of it is due to care in cultivation, and a close study of the requirements of each variety, as much or more is due to a quick eye to note valuable variations, and a quick mind to make the most of them. Every crop which we grow exhibits many variations from the designated type, and the best opportunity for success lies in noting those which indicate special value.

Though variation is constantly showing itself, it appears more frequently as the distance widens between the locality where a variety originated and that where its cultivation is attempted. It often happens that such variation may seem to make a variety utterly worthless in its new location. This was the case in an attempt made, not long ago, to grow a northern variety of Sweet Corn in the south. There was an almost entire failure; but, by successive replanting from the southern-grown seed, not only was the type re-established by spontaneous adaptation, but it was absolutely improved.

In my own experience, extending over twenty-five years in northern Vermont, I have reached the conclusion that a variety of early peas, or beans, or corn, can be made to order in a longer or shorter time, according to the complexity of the requirements imposed. When a variety begins to sport—and they all do it—by successive plantings they may be made to fly, so to speak, in all directions, and then we have only to select and fix the form that suits us. From a single bean sport I have grown hundreds of varieties, which could have been increased to thousands before a tendency toward fixity again showed itself. In these varieties were seen almost every form of plant, of seed, and of markings; but it was not until the fourth generation that the original type reappeared, even approximately. In peas, I have actually produced, by crossing and selection, a predetermined variety with a special characteristic previously unknown. In the same way I have, by crossing, produced a sweet corn having all the characters of the Black Mexican (but much earlier), without the least aid from the latter.

It is easy to see from this how easy it may be, in a proper location, to obtain and measurably fix a habit of early maturity

in any garden vegetable capable of being successfully grown there at all. But when the desired thing is produced, it is to a great extent the child of its environment, capable, with care, of perpetuation in that specific locality, but with no sure promise that it will live up to its home character when removed to a considerable distance. I believe that no variety of corn will continue the same if moved in latitude more than fifty miles; and where it is a question of altitude as well as latitude, it will prove itself quite unstable under changes of a very few hundred feet.

This subject is one that seems to be worthy of careful attention. If properly studied, I am confident that very surprising results will be reached, and certain principles established, which will not only remove all mystery, but will give us mastery where before we trusted to chance.

Newport, Vt. *T. H. Hoskins.*

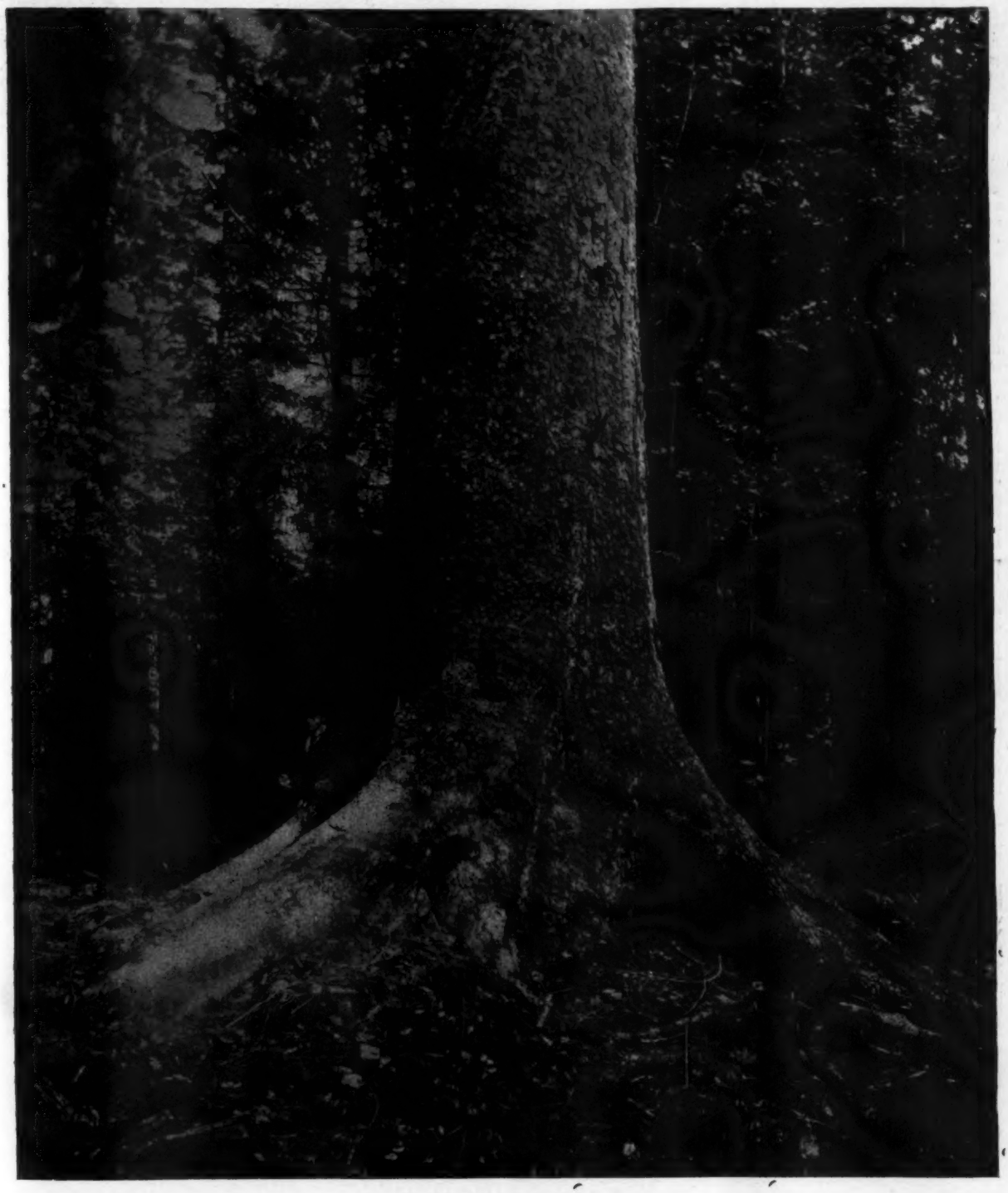

Fig. 38.—The Douglas Fir.—See page 205.

The Egg-plant and its Cultivation.

A LATE bulletin from the Cornell Experiment Station gives some interesting experiences with the Egg-plant, and from it we make the following extracts:

The chief difficulty in growing the Egg-plant in the north is the shortness of the seasons. It is only by starting plants early and maintaining a vigorous growth that we can succeed in fruiting the large sorts satisfactorily. The plants should be started under glass from the middle of March to the middle of April in a warm house. In the cold and small house used in our early tests the plants grew slowly, and when set out-of-doors they were not of sufficient size and vigor to begin bearing at once. We sow in "flats" or boxes, and when the first true leaves are about a half inch in diameter—which is about a month after the seed is sown—the plants are pricked off into two-inch pots. As soon as the pots are filled with roots the plants are shifted into four-inch pots. We have had indifferent success in transplanting into other flats, as the plant is more severely checked when placed in the field from the greater injury to the roots. It is imperative that the plants should not become "drawn." The plants are transferred from the four-inch pots to the garden from the first to the middle of June. The early sorts, as Early Dwarf Purple, are not so seriously injured by a check in growth as the large and late sorts, and they can therefore be handled with less care. These sorts can be started two weeks later than the others and receive but one transplanting. The effects of early and late setting are shown in the following experiment:

Seeds of several varieties were sown March 27th and May 15th. On the 7th of September they presented the following differences: Long Purple, Giant Round Purple and Long White from early sowing were productive, but few or no fruits had formed on the plants from late sowing. Early Long Purple and Round White from the late sowing were fully as productive as those from the early sowing. Early Dwarf Purple gave best results from plants started April 15th. This shows that there is little or no gain in productiveness in the small early sorts from very early sowing, while the large sorts profit by it. The Black Pekin, which is one of the large varieties, proved an apparent exception, however. Plants started May 1st gave better results than those started earlier, but neither lot was satisfactory. The unsatisfactory results from the early sowing may have been due to the loss of the first flowers because of the transplanting. Transplanting usually has the effect of keeping plants growing to the detriment of the flowers; and Egg-plants which are in bloom when removed to the field are apt to drop the flowers. It is important in the large sorts to induce the first flowers to set.

The best soil for Egg-plants is a rich sandy loam—not too light—which contains an abundance of humus and retains moisture. Manure heavily. Large kinds should be set three feet apart each way. The ground should be thoroughly cultivated throughout the season. We run lightly through the land with the cultivator twice a week. The worst enemy of the Egg-plant is the Potato-beetle, which prefers Egg-plants to Potatoes. The Egg-plant grows slowly, and any injury to the young plant is with difficulty overcome. If the plants are seriously injured when first set there will be little use in attempting to fruit the large kinds. Paris green, at the rate of one pound to one hundred gallons of water, is destructive to the beetle. Very rarely do plants in a large plantation of the late varieties all mature fruit, and such kinds as Black Pekin, New York and Giant Round Purple rarely mature more than two large fruits to the plant in this latitude, and often only one. Some of the early and medium varieties mature from four to eight fruits. The value of any late variety depends largely on the uniformity with which all the plants set and mature fruit. The New York Improved possess this advantage over the old New York Purple. The value of long and careful selection to this end was illustrated in our large plantation of crosses last year. A large percentage of the plants were entirely unfruitful, showing that a promiscuous lot of seedlings is likely to be unproductive, and in this case these seedlings were crosses between productive parents. Breeding plants of uniform productiveness is the most important field in experiments with the Egg-plant now.

The varieties are not numerous, and vary widely in habit, pubescence, spininess, color of plant and fruit, size, shape and season of fruit. The larger varieties are most popular in market, but some of the earlier and smaller kinds are better. The white varieties find little demand in the market, and there is an impression that they are unwholesome, but they possess no other fault than a hardness of flesh and rind in the case of the smaller varieties. The White Chinese is as good as any for table use.

Besides a record of experiments in crossing different varieties, the bulletin contains an interesting study of the botany of the plant, by Professor Bailey. A summary of the bulletin is given as follows:

1. Egg-plants are adapted to cultivation in the north. The requisites of success in growing them are these: early starting; warm quarters; vigorous plants; rather late transplanting to the field; warm, rich and rather moist soil; constant attention to Potato-beetles; frequent cultivation.

2. The best varieties for private use are Early Dwarf Purple, Early Long Purple, White Chinese, with perhaps Black Pekin for late.

3. The best market varieties are New York Improved and Black Pekin, with perhaps Early Long Purple for the first demands.

4. In crossing different races of Egg-plants, the purple-fruited types appear to be stronger in their power to transmit color to offspring than do the white-fruited types; and this appears to hold whether the purple type is used as the staminate or the pistillate parent.

5. The white-fruited types appear stronger in the power to transmit form and productiveness.

6. Fewer seeds are produced by flowers artificially pollinated than by those left to mature, even though an excess of pollen is used.

7. It is probable that the Egg-plant may be included among those plants which are capable of producing fruit without the aid of pollen.

Garden Annuals.

HOWEVER valuable perennial plants may be, some, like the Oriental Poppy, die down early and leave a gap, while others do not make much show until late in the season, and it is just here that the annual plants help out and contribute their share toward the summer display. A garden planted with perennials will still have room for patches of Mignonette, a group of China Asters, various in color or all alike, as the fancy is, or some Helichrysums, which, if cut when fully open and before they are discolored by the rain, will keep bright until more may be cut next season. One who tries to grow all the good perennials will still have room for all the good annuals; and a model flower-border is one that combines the best of both classes with hardy bulbous plants.

Our Narcissus are of necessity planted in a wide border in rows eighteen inches apart, and between the rows will be planted later on a quantity of Asters of various kinds for cutting; this will save despoiling the flower-garden proper, for although Asters make a brave show while they are in flower, a heavy rain gives them a sorry and bedraggled look, and they should never be employed except in a secondary place, where they will aid in forming a display. Zinnias are entirely different, and may be used alone or dotted about in groups among other plants, because they blossom continually until frost, are not hurt by rain, and are excellent for cutting. In these three respects they excel the old bedding Geranium. In a wide border, or in any place where it is customary to plant the Geranium, Zinnias will answer the purpose admirably, and one has not to provide room for them all winter. In sowing Zinnias it is best to get separate colors, as in the mixed seed there are so many displeasing shades. Good colors and true to name can now be obtained, and if you want the "finest mixed" buy the colors you like and make your own. The same remark applies to Stocks.

Another annual plant, not half so well known as it should be, is the "Yellow Corn Flower," *Centaurea suaveolens*. In shape it is similar to the blue one, differing only in color, which is bright yellow. As the flowers are borne on long stems they have already attracted the attention of florists for winter cutting. The plant succeeds well when sowed in the open ground in May.

The Marguerite Carnation is one of the most valuable of recent introductions for those who cannot grow the ordinary florist Pinks, for, in a comparatively short time, good strong plants can be raised from seed and flowered, and it is surprising how really good the flowers are. The percentage of single flowers is very small. A florist of my acquaintance planted a lot of these on his benches last fall, with other pinks, and they gave an immense crop, many of them being beautiful in color, and all were fragrant. After a little more careful selection this Carnation will be an indispensable garden plant.

Sweet Peas should be sown by this time, and wherever they may be planted provision should be made for watering in dry weather, or failure is certain. Last summer six weeks of dry weather deprived us of these flowers, and this season we took

the precaution to dig a trench eighteen inches deep and place plenty of manure at the bottom, filling in the soil and sowing the seeds. In hot dry weather the rows will also be mulched and watered, and in this way a constant supply will be maintained. Do not buy mixed seed.

Mignonette is so much liked, and there are so many sorts offered, that one does not know which to sow out in the open ground. While all may be good in-doors, few will stand our hot sun and dry weather. We have found Machet the best; it produces good stout spikes of fragrant flowers until the fall.

Nasturtiums are often planted in rich soil. This is a mistake, for very few flowers are then produced; but when sown in poor soil they will flower abundantly. The same rule holds with *Salvia splendens*, now often treated as an annual. The Poppies, of which there are so many kinds, are very showy. They do not last long, but if cut when about to open they will last several days, and are useful for large vases for room decoration.

South Lancaster, Mass. *E. O. Orpet.*

Odontoglossum Œrstedii.

THIS small compact species is nearly always sure to be found in flower during the early months of spring, and although its blooms do not equal in size those of many other Odontoglossums, nor are they borne in such profusion, nevertheless they possess a charm peculiarly their own. The pseudo-bulbs are small—about the size of a pigeon's egg when fully developed—ovoid, more or less compressed, and furnished at the summit with a solitary oblong-elliptic leaf from three to five inches long, the lower portion being narrowed somewhat abruptly into a petiole. About two or three flowers are generally borne on the scapes, which spring from the base of the ripened pseudo-bulbs. Each flower is from one to one and a half inches across, and pure white with the exception of the bright yellow callus, which is more or less densely covered with deep orange spots. The sepals are rather broader than the petals, and are bluntly oblong with apiculate tips; the spreading petals are somewhat similar in shape, but are contracted at the base, while the roundish or wedge-shaped lip is more or less cut in the centre.

Messrs. Veitch & Sons, of Chelsea, were the first to flower *O. Œrstedii* in England in 1873, a year after its actual introduction to cultivation through the collector Endres. The knowledge of this species, however, dates as far back as 1848, when it was discovered by Warscewicz in moist situations in Costa Rica at the height of 7,000 to 9,000 feet above the sea-level. It was afterward found by Dr. Œrsted (whose name it bears), Endres and Wendland, the latter, it might be remarked, being now the sole survivor and director of the gardens at Herrenhausen, Germany. It is possible that the first plants introduced were somewhat sickly or did not produce flowers of much merit, for, although shown on several occasions since the time of its first flowering, it was not until March, 1884, that this plant received a first-class certificate from the Royal Horticultural Society, the specimen on this occasion having been grown in the then famous, but now obsolete, collection of Mr. William Lee, of Downside, Letherhead.

Growing at a high altitude in its native country, *O. Œrstedii*, naturally requires only a moderate amount of heat under cultivation. It is found to thrive best in well-drained shallow pans in a light compost of peat and sphagnum. The pans should be suspended near the glass, so that the plants may obtain the greatest possible amount of light, without, however, subjecting them to the very hot rays of the sun. Watering is regulated according to the condition of growth, more frequent supplies being given when the young bulbs are rapidly increasing in vigor, and a gradual diminution, with plenty of air, as they are becoming mature and ready to produce their flowerscapes. The temperature may be fifty to fifty-five degrees Fahrenheit in winter, gradually rising to sixty or sixty-five degrees during the summer.

Isleworth, London, W. *J. Weathers.*

Iris Caucasica came into bloom about the middle of April. This is one of the hardy bulbous (*Xiphion*) Irises of the Juno section, and should probably be grown in rather stiff soil. The habit is very peculiar and distinct. The plant is dwarf, leaves short, pointed, shiny above, with a slight, thin, white line on margin. The leaves are distichous, *i. e.*, arranged in two perpendicular rows. The flowers are small, and appear in succession from the axils of the upper leaves. They have a very quiet beauty, being of a translucent greenish yellow, with a distinct crest on the claw and blade.

Scilla trifolia is a distinct but not very showy Squill, which was in flower in April. The three leaves are lance-shaped, slightly glaucous, and rather thinner in texture than is usual in the family. The flowers are individually small and borne in pyramidal raceme on short scapes. In color they are light blue, of a pleasing shade. They are natives of Asia Minor, and excellent subjects for the rockery.

Phlox subulata Sadie.—This is a plant to be made a note of now that it is in bloom. It is apparently a cross between *P. subulata* and *P. stellaria*, showing many of the characteristics of the latter, with the compact growth of the former. The flowers are large and white, with a very slight lavender tint. As grown in a large mass at Myer's nursery, where I saw it coming into bloom a few days since, it was very effective, and seemed a valuable variety for an early spring border.

Begonia Triomphe de Lemoine, the flowers of which have been illustrated in Garden and Forest (vol. ii., p. 557), proves to be a very distinct variety of this interesting family. The plant has not proved of very attractive habit in the greenhouse, but this may be a fault of cultivation, as the stock was secured too late to cultivate out-of-doors in summer, as advised by the raiser. The leaves are round and peltate, the stems herbaceous. The influence of the Socotrana parentage is quite pronounced in these, as well as in the flowers, which are the most persistent of any Begonia yet introduced. I am not prepared to say exactly how long they remain on the plants, but some clusters of flowers which appeared in the winter still seem to be undiminished. The flowers individually are not specially attractive or large, but they are of a good pure dark red and very abundant. Plants of this variety should be secured now and grown in the open air during summer, so that they will be strong for their winter work. *Begonia Socotrana* seems to be the missing link between the fibrous and tuberous-rooted sections, making crosses with either. None of the fibrous-rooted hybrids as yet have the large showy flowers of the tuberous crosses, but in some respects they are more desirable for general cultivation, as they do not have such a distinct period of rest and are always in evidence. The deciduous section are easily lost if care is not taken of the bulbs, and there is always more or less care required to dry them off properly and start again at proper season.

Begonia Louis Closson.—Among the Rex Begonias, Louis Chrétian has long held first place as the brightest and most effective, but it is very probable that this new variety will at least equal the older one, if not surpass it, in popular favor. The leaves of Louis Closson are broadly margined and centred with a lustrous pure black, and the zone is a rich satiny deep wine-red, a very quiet, rich and effective combination.

Elizabeth, N. J. *J. N. G.*

Correspondence.

Botanical Nomenclature.

To the Editor of Garden and Forest:

Sir,—The discussion in regard to the establishment of a stable botanical nomenclature has a special interest to me from the fact that, in a short time, I propose to have published from this division a check list of the arborescent flora of the United States, containing both botanical and vulgar names; and, while Mr. Sudworth is working out the botanical synonymy, it will fall to me to decide muted points.

I should like, therefore, to see all such points discussed fully, in order to arrive at what the consensus of opinion is, and to render our work of revision as stable as possible.

Dr. Britton suggests that we follow the practice of the ornithologists in not citing the author of a new combination of specific and generic names. I think this would be a mistake, and, while we may admire the modesty and the deference to artistic sense on the part of the ornithologists (inasmuch as the names of one or two authors who made the revision would appear endlessly repeated), we have no such reasons in the botanical nomenclature for abandoning historical accuracy.

The practice of adding the author's name to the plant name serves, first of all, the valuable purpose of identifying the plant to which the name is given; it is the mark of identity. Thus, by writing *Tilia Americana*, L., we want to insure that we call up the plant which Linnæus described and named, and not, perhaps, the plant which Walter described under the same name.

Next comes the historical relation which the citation of an author at once brings before the student. We are informed that Linnæus knew the genus Tilia and the species Ameri-

cana as such, and can find in his writings a description under that name. Last, though in the minds of many this seems the foremost use of the citation, the personal consideration comes in of giving credit to the discoverer, the describer, the namer of the plant.

Making priority of name the criterion for its use, I take it, is not to glorify the namer and give him due credit, but to find some basis upon which to establish order out of chaos.

The notation, by which we write *Hicoria minima* (Marsh.), Britton, answers admirably all the requirements of ready reference, historical accuracy and personal responsibility. None other will suffice; none better, I think, can be proposed. Leaving out "Britton" at once introduces a factor of error or doubt as to what plant really is meant, for Marshall never described any plant under that name, and we could not identify it by reference to his publications unless we guessed that his Carya corresponded to Hicoria; furthermore, it would be misleading historically, for in his time, or by him, Hicoria was not known as equivalent to Carya, and even personal responsibility would be misplaced, for he was not the author of the name as it stands, but only of a part of it.

On the other hand, if we write Catalpa Catalpa (L.), Sudworth, we know at once this is a plant which bears its name by virtue of a revision made by Sudworth, and somewhere I may find the history of that revision and the relation of this name to other names. It shortens the road, moreover, by giving me the historical information that Linnæus used the specific name Catalpa, but did not place it in the genus Catalpa; hence, if I know that the genus Catalpa and Bignonia have been differentiated, I can at once identify Bignonia Catalpa of Linnaeus as the plant here meant, and identification, historical truth and proper reference, the three objects of citation, have been attained.

Let us for once agree as to what thing we mean to call by a given name, and it will be possible by and by to drop the author of the name entirely, just as in common life, when we speak of a billiard-table it is not necessary to add, "I mean that which So and So first called billiard-table." This time, however, is not near at hand, except perhaps with some well-established, unmistakable species, and, therefore, we shall have need, for the sake of accuracy, to continue citing authors. But by all means let us have them cited fully and accurately, or else the value of the citation is illusionary.

Forestry Division, Department of Agriculture, Washington. *B. E. Fernow.*

April Flowers in Northern California.

To the Editor of Garden and Forest:

Sir,—The middle of April, in California, north of San Francisco Bay, finds the wild flowers, in hundreds of species, and often in vast quantities, covering acres on acres of ground. As yet the height of the season is not reached. The San Joaquin Valley and Monterey are fully three weeks earlier, and southern California earlier still. A month ago our common Buttercups, *Ranunculus macranthus*, were few in numbers; now the roadsides are yellow with them, and pastures are covered with them by the acre. In wet places *R. Bloomeri* takes its place with equal profusion. Yellow seems a favorite color here, for it is always seen in masses. In places a low-growing Œnothera, in profuse flower, shows the richest of yellows for a long period. Then the Eschscholtzia fairly monopolizes some vacant lots in this town where there is a deep gravelly soil. These beautiful Poppies appear, not in dozens or thousands, but turn whole acres into billowy masses of splendid orange; other acres glow with the darker orange of Amsinckia or the purple-blue of Lupines. The Eschscholtzia foliage is especially rich this season in scarlets and bronzes, which, if they could be relied upon as permanent, would make it an interesting foliage plant.

Nemophilas are largely used by nature as bedding plants here. *N. insignis*, Blue Eyes we call it, is everywhere in single plants or in beds, a few yards in extent, and occasionally by the solid acre. *Gilia tricolor* is another plant which now covers entire hillsides. *Platystemon Californica*, another member of the Poppy family, is also a favorite with nature. The flowers are a creamy yellow, borne separately on long stalks. In dry fields it covers large areas. White is the rarest color in these natural parks. Several species of Eritrichium are here, with delicate, white flowers. *Limnanthes Douglasii*, long in cultivation, forms large, white masses in moist places. Scarlet does not yet appear in abundance, although *Calandrinia Menziesii*, another cultivated species, is everywhere.

Mendocino County and the region around the base of Mount Shasta have the richest flora in California. The Sierra Nevada range is largely volcanic. In the coast range clays prevail, with here and there volcanic projections. At Shasta these two ranges meet, giving in a small space great variations in soil, altitude, exposure and moisture. The rainiest spot in California is closely adjacent to a lava desert, so at Mount Shasta the conifers have a wonderful development in species, and the flora as a whole is very rich. In Mendocino County the Redwood-forest furnishes shade and moisture. The dry Chemisal region is close at hand, giving the prevalent flora of the coast range. Elevations of 5,000 to 6,000 feet give alpine conditions, while isolated volcanic points add variety to soil. Add to this narrow valleys and deep cañons, and the variety of vegetation is not to be wondered at.

Among shrubs the various Ceanothus are common, going far to make up the unbroken growth, from six to fifteen feet high, which, in an almost impenetrable thicket, clothes many of the mountain-sides of the coast range, and gives them a smooth, Heath-like appearance. The local name for this low growth is chemisal when the shrub *Adenostoma fasciculatis* predominates; chapparal, if the growth is largely mixed. In the aggregate vast areas are so covered. One continuous belt is sixty miles long by eight or ten wide, with very small breaks in timber or grazing-land. *Ceanothus divaricatus* is one of the commonest elements of chapparal, and is now in bloom. In the open Redwood *C. thyrsiflorus*, a fine shrub, often fifteen feet high, with flowers much like a lilac, and fully as beautiful, covers large areas in an almost impenetrable thicket.

In my garden *Erythronium grandiflorum* is beginning to fade. It gave fine satisfaction this season, planted in chip mold, and rather shallow. *E. giganteum*, from Oregon, bloomed for the first time this year. The bulbs were strong and produced large blossoms, four to six to each, and several three inches across. Close observation shows some difference between this and *E. grandiflorum*, but the distinction is not well enough defined to be satisfactory. The yellow of the flowers of *E. giganteum* has a slight greenish shade, while those of *E. grandiflorum* shade from light straw at tips to rich yellow near the centre, and occasionally with markings from light brown to very dark. *E. Smithii* lacks the elegance of form of the two former, and is one-flowered. Its color, at first, is white, with a pink tinge, and becomes pink-purple. *E. Howellii* has a straw-colored flower with a peculiar pinkish orange centre. With me it was quite small, but the bulbs may not have been strong.

Brodiæa multiflora and *B. congesta* blossomed together, and very beautiful they were. They were planted in shallow boxes, the top soil mold and clay with a light dressing of sand. The first Calochortus to flower was the dainty little *C. cæruleus*. It was closely followed by *C. lilacinus*. The first is doing well in a common clay loam. *Fritillaria lanceolata* seems to run to many forms, which, to the gardener, would be good varieties. The prettiest I had this year was a light yellow one. They were in shallow boxes about three inches deep, in clay loam, and shaded in the afternoon. Considering the quality of the bulb the flowers were as good as I have seen in the very best natural wild growth. There is a variety of *F. recurva* which is unusually fine. Some racemes were sent to me with five to nine blossoms, and I have heard of one with eighteen.

Ukiah, Cal. *Carl Purdy.*

Washington in April.

To the Editor of Garden and Forest:

Sir,—No city can be more beautiful than Washington is in the latter part of April, with mile upon mile of flourishing trees of all varieties in their fresh young foliage. These border the streets and avenues and stand guard over the wide parking of emerald turf spread out before each residence. The fronts of many houses are at present one mass of long violet clusters of Wistaria, or almost covered with the brilliant green of Honeysuckle or the half-open leaves of the Virginia Creeper, or its next of kin, the Japan Ampelopsis.

The public parks have burst into bloom and beauty in the most marvelous manner within a few days. Great clumps of white and purple Lilacs, pink sprays of Flowering Almond and Tamarix, snowy blooms of many sorts of Spirea (although the latter are not doing their best this year), Snowballs just ready to "turn white in a single night," occasional small groups of Blood Maples, Purple Plums and Golden Barberries, with the silver bells of the Halesia and the flame of Japan Quince blossoms against the rich satiny turf, make a wealth

of bright color even under the soft sunshine and the opal haze of spring.

The attractive features of this locality are not confined to the city limits, however. Yesterday a drive of a few miles up the Potomac brought me to Glen Echo, where, on the river's bank, the new and permanent home of the Chautauquans has been selected.

The woods abound with Dogwoods and Redbuds, and they are now in their glory. The bright blossoms among the sombre Cedars and Pines, and the rapidly bursting foliage of the Chestnuts, Elms, Oaks, Poplars, Beeches, with their varying tints and shades, make the prospect one dream of beauty.

The carpeting of these groves, which has long been flecked with the Trailing Arbutus, the milky Bloodroots and pale pink and blue Liverworts, is now ornamented with clumps of Saxifrage, Spring Beauties and graceful Wind-flowers, with here and there a patch of Bluets, Buttercups and Violets. Besides these are Adders'-tongues or Dog's-tooth Violets, some bunches of the early Daisy, with its broad golden eye and fine lavender lashes, sometimes, I think, called Robin's Plantain, and graceful stems of Solomon's Seal almost in bloom. Farther down the slopes are snowy stretches of the great starry Chickweed, and near the water the stiff Jack-in-the-pulpit, the odd umbrella-leaved May Apples and uncurling fronds of many Ferns are running riot. Around the base of the rocks, many of the crevices of which are adorned with clumps of wild Columbine, are tufts of Everlasting, wild Pinks (*Silene Pennsylvanica*) and the pretty-leaved Lousewort. There is an occasional breath from the Swamp Magnolia, and the warm pink Azaleas are just beginning to bloom among the Huckleberries on the hill-side. Near the river grows the purple Lady's-slipper, with its rosette of light green leaves, amid a great wealth of the Lungwort, with its smooth, tender foliage, graceful stems and loosely flowered racemes of dainty purplish pink buds the size of a pin-head, with the full, open trumpets of the developed flower, a delicate clear blue. Surely, Glen Echo is worth a visit.

Washington, D. C. *M. Fuller.*

Orchids at Whitinsville.

To the Editor of GARDEN AND FOREST:

Sir,—In the conservatories of Mrs. J. W. Lasell, at Whitinsville, Massachusetts, I recently saw a plant of *Cymbidium Lowianum* with eleven spikes, and nineteen flowers on some of the spikes. The flowers of this plant had more of the golden yellow tinge than is generally seen, while the lip was a rich dark brown.

A superb specimen of *Cattleya amethystoglossa* had a spike with twenty-three flowers. Fortunately, this remarkable plant has been photographed. In other Cattleyas this collection is remarkably rich, having good specimens of all the choice species and varieties.

Among Cypripediums are many fine plants of Spicerianum, Lawrencianum, Sanderianum and others, some forty varieties in all. Mr. McWilliam, under whose care those fine plants flourish, has a great many seedling hybrids which are yet too small to flower. Notable among the large collection of Dendrobiums here, is a specimen of *D. formosum giganteum*, which made a twenty-nine-inch growth last season, producing twelve large well-developed flowers. The English horticultural journals complain that this plant does not succeed well there. Mr. McWilliam grows it in a much lower temperature than it is said to have in England, and gives it a three months' rest after flowering at a temperature of forty-five degrees. *Cœlogyne cristata* was almost past, but had been a mass of flowers for three months. Twenty-six ten-inch pans produced from thirty to fifty-four spikes each.

Disa grandiflora flowers here every summer, with Lælias in variety, and many Lycastes, Masdevallias, Oncidiums, Phalænopses, Saccolabiums, Vandas and Zygopetalums. Of Odontoglossums there are more than two hundred plants of choice varieties, *O. vexillarium* being particularly well done. One plant last season had thirteen spikes.

Calanthes were a show of themselves for about three months, a hundred plants being in flower at once last year.

Peristeria elata, the Holy Ghost Plant, is well grown here, as those will testify who saw the remarkable plant at the exhibition in Boston last August. This plant had twelve spikes, and one of them bore seventeen expanded flowers, with as many more to open.

Apart from Orchids, there is much here to interest intelligent lovers of plants, not only in the way of rare and choice specimens, but in the admirable growth of all kinds of plants, which is the test of a good gardener.

Whitinsville, Mass. *W. S.*

Recent Publications.

Floriculture as an industry has never been made the subject of census investigation until now, and, therefore, the preliminary report which has just come to this office has exceptional interest. The business has been carried on, of course, for more than a hundred years in the country, and yet the statistics show that it has only assumed large proportions during the last quarter of a century. Out of nearly 5,000 establishments, three-fifths have been started since 1870 and one-third of them since 1880. At the beginning of the century there was but one commercial florist in the country, and only three establishments were started between 1810 and 1820. Eighty per cent. of the entire business has been developed during the past twenty-five years. During the census year every state and territory, except Idaho, Nevada, the Indian Territory and Oklahama, reported some business in floriculture, and, perhaps, in these states small establishments would have been discovered if sufficiently thorough investigation could have been made.

The report makes record of 4,659 establishments, of which 312 were owned and conducted by women. These establishments had in use 38,823,247 square feet of glass, covering a space of more than 891 acres. Their value, including fixtures and heating apparatus, was $38,355,722, and the tools used were valued at $1,587,690 more. Wages amounting to $8,483,600 were paid to 16,847 men and 1,958 women. The fuel cost more than $1,000,000, and the postage on the 20,000,000 catalogues amounted to $767,438. In addition to this, more than $1,000,000 were paid for advertising, and another $1,000,000 for freight and express bills. The receipts from cut flowers amounted to more than $14,000,000, and from plants and shrubs more than $12,000,000. The largest area in glass in a single establishment was found in the District of Columbia, and the smallest in a New England farm-house, from which the lady of the house sells annually from $35 to $50 worth of plants and flowers, raised under sixty square feet of glass. Besides the Society of American Florists there are 965 state and local societies and clubs, and 358 horticultural societies, and these, aided by the agricultural and horticultural press, have helped to put the industry in its present healthy and prosperous condition, giving employment to thousands of people, and furnishing a fair reward for capital invested, besides doing much to adorn the homes and elevate the taste of people of all classes.

It is difficult to estimate the rate of wages paid, because many of the greenhouses are small—that is, having a glass area of from 300 to 1,500 square feet—and in them there is no outside labor employed, since the owner or some member of his family does all the work, often in connection with market gardening or a small nursery-trade, and some of the smaller establishments are conducted by women or persons who are invalids and who are not able or do not care to work all the time. In many of the larger establishments during the busy seasons numbers of extra men are employed, and this makes an additional difficulty in the estimate. The figures seem to show, however, that the wages paid in what is called the North Atlantic division of the United States are rather more than $1.50 a day to men, and rather less than a dollar a day to women, although in every establishment of any size there are men acting as experts, or as foremen, who receive from $15 to $20 a week. In the southern states lower wages are paid, and higher pay is commanded in the Pacific states.

Of the plants sold the demand in the northern and eastern states is greatest for the following in nearly the order named: Geraniums, Coleus, Roses, Pansies, Verbenas, Heliotropes, Carnations, Chrysanthemums, Palms, Ferns and Fuchsias. In the south the demand is for Roses first, and then for Chrysanthemums, Geraniums, Coleus, Palms and Ferns, while California shows the demand to be largest for Roses, Carnations, Chrysanthemums, Geraniums, Palms and Pansies. There is also a very general and growing demand for aquatic plants, and specialists are giving marked attention to this branch of the business. Regarding cut-flower sales, reports show that, while there is a slight variation in the demands of the different markets, the greatest demand everywhere is for Roses, followed closely by Carnations. These two furnish about sixty-five per cent. in value of all cut flowers sold. Violets, Chrysanthemums, Lilies, Hyacinths, Smilax, Bouvardias, Heliotrope, Pansies and Tulips, in the order named, supply twenty-five per cent. more, while the other ten per cent. is made up of Orchids, Tuberoses, Mignonette, Primroses, Camellias, Daffodils, and many others cultivated in a small way to supply a special or local demand. As to the profits in the business from the different classes of plants, eighty per cent. of the re-

ports mention Roses as most profitable, Carnations second and Violets third, while twenty per cent. rank Carnations first, Roses second and Violets third.

Notes.

Mr. Jacob Austin, of Fergus Falls, Minnesota, who has done much to encourage tree-planting on the borders of the prairie, has been exhibiting a fine lot of maple-sugar made from trees of his own planting.

"Reader," who wishes to know whether the Rose Baroness Rothschild is correctly described in a leading trade catalogue as "delightfully perfumed," is informed that the Rose in question has no fragrance.

Lilies-of-the-valley have recently been grown in England in large pyramids formed of a light, wooden, lattice-work filled with moss, the bulbs being set about an inch apart, and the plants, when fully developed, forming a solid mass of leaves and flowers.

For the past week the Weeping Japanese Cherry has been an object of striking beauty. These trees grow very rapidly, and soon become twelve or fifteen feet high, with branches which droop to the ground in a circle of as many feet in diameter, and covered completely with light pink blossoms.

Rarely do we see Peach-trees, Cherry-trees, Plum-trees and Apple-trees all in bloom at once, but this is what has happened this year in this neighborhood owing to the sudden coming of warm sunshine. Singularly enough, hereabouts, the blossoms of the Cherry-trees opened before those of the Peach-trees. What was the occasion of this change in the order of the floral procession?

In a paper on cultivating Carnations, read before the Philadelphia Florist Club, Mr. A. M. Herr gave the following list of varieties as the best market sorts with him, on sandy loam that does not readily become water-clogged: For white, Lizzie McGowan, Mrs. Fisher, L. L. Lamborn and Silver Spray; for pink, Grace Wilder, Christmas, Fred Creighton and Day Break; for scarlet, Hector only; for crimson, Anna Webb; for carmine there is nothing to compare with Tidal Wave. Buttercup is the best of its color, but it cannot be grown successfully by Mr. Herr, and therefore he substitutes for it Golden Gate. For fancy, J. J. Harrison, Nellie Lewis and Chester Pride have proved the best.

It is asserted in a German horticultural journal that two valuable novelties, *Iris Danfordiæ* and *Heuchera sanguinea*, have proved entirely hardy in Silesia during two severe winters. The former, which was procured by Herr Max Leichtlin from the banks of the Euphrates, perished the first winter that the writer attempted to grow it, when it was protected with planks and leaves. But this year, when it was left entirely unprotected, it survived and came bravely into bloom with the Snowdrops. An old plant of *Heuchera sanguinea*, which is a native of Arizona and northern Mexico, was also left uncovered and likewise survived, while seedlings of 1889 did as well under a slight covering.

A Hyacinth exhibition was recently held at Charlottenburg, near Berlin, for the purpose of proving that German horticulturists and amateurs need not feel dependent upon Holland for their supply of these plants. Twenty thousand blooming plants were exhibited by eleven growers of the immediate vicinity, and the display is said to have been very fine despite the unfavorable weather of the winter just past. A writer in *Gartenflora* declares that, although much greater areas are devoted to Hyacinth culture in Holland than in Prussia, and although the varieties there produced are more numerous, the Berlin flowers now equal the Dutch as regards purity of strain, good general development, prolific blooming, and the beauty of individual flowers.

In response to a request for a list of varieties to restore a run-down fruit-garden, Mr. J. J. Thomas names the following, which are hardy and productive, and as they are for home use good quality has been considered of the first importance. Apples, for succession: Early Harvest, Yellow Transparent, Sweet Bough, Primate, Autumn Strawberry, Gravenstein, Fameuse, Hubbardston, Wagener, R. I. Greening, Jonathan, Red Canada. Pears: Summer Doyenné, Giffard, Tyson, Bartlett, Howell, Anjou, Lawrence, Malines. Peaches: Early Rivers, Mountain Rose, Large Early York, Crawford, Nivette, Richmond, Stump, Salway and many others. Plums: Bradshaw, Imperial Gage, McLaughlin, Jefferson, Lawrence Gage, Bavay. Cherries: Coe's Transparent, Rockport, Black Tartarian, Windsor, Early Richmond, Large Morello. These are only a few; there are other sorts nearly as good, and which may be substituted when a change in locality requires, or where personal preferences would make additions.

In an article on "The Republic of Uruguay," by Mr. Theodore Child, published in the May number of *Harper's Magazine*, there is a description of the Central Cemetery of Montevideo which shows that the Campo Santo of the south of Europe has perpetuated itself in South America. This cemetery, we are told, "is considered one of the sights of the capital. It has a monumental entrance and an elaborate chapel, and is reputed to be the most luxuriously and best-arranged cemetery in South America. It is situated on the sea-shore and divided into three sections, surrounded by high walls, in which are arranged, on the inside, innumerable niches, each with its marble tablet recording the names of those whose remains are deposited inside. The coffins are wound up to the mouth of these mural cellules by means of a portable lift and ladder combined, and the whole surface of the walls is hung with wreaths of fresh flowers or of beads, which stand out in strong relief against the marble facings. Each section of the cemetery is carefully laid out, fenced in with iron railings, and full of tombs and monuments of great price and pretensions, due to the chisels of the sculptors of Rome and Milan. The vegetation in the cemetery is most varied, and, besides the funereal Cypresses, there are flowering shrubs of many kinds, and on almost every grave wreaths of fresh flowers, constantly renewed, that fill the air with their perfume. The pious luxury displayed in this Campo Santo is remarkable."

The name of Baron Haussmann, who recently died in Paris at the age of eighty-two years, is probably better known than that of any of his contemporaries whose public services were of a purely pacific kind. Appointed Prefect of the Seine in 1853, soon after Napoleon III. placed himself on the throne, he was busied until the fall of the Empire in improving the city of Paris. Not unnaturally, he was severely criticised for many of the changes he wrought in sweeping away the old narrow filthy streets and opening wide, straight thoroughfares in their stead, for the historic interest of Paris was thus greatly decreased and many buildings of architectural as well as historic importance were swept away. But those who believe that the first purpose of cities is to afford comfortable and wholesome places of habitation rather than to be museums for the delectation of travelers, cannot but look with admiration on the results of his work, which have made of Paris the most stately and splendid of modern towns. Nor were his services confined to the cutting of new boulevards and the transforming of whole regions like the Batignolles Quarter from tangles of dirty alleys, inhabited by the most wretched poor, into spacious, airy and healthful districts. He carefully arranged for the planting of avenues and small squares, was the first to propose the improvement of the Bois de Boulogne and the Parc Monceau, and established the Parc des Buttes Chaumont, which, on account of the peculiarly broken character of its site, is now one of the most interesting pleasure-grounds in Europe.

The court-gardener at Carlsruhe recently wrote to a German horticultural journal that many of the trees under his care had suffered terribly during the exceptionally cold season just past. Cherry-Laurels and Aucubas had frozen, and likewise Cedars of Lebanon, Deodars, *Sequoia sempervirens*, *Libocedrus decurrens*, *Cryptomeria japonica*, *Abies concolor* and its variety *lasiocarpa*, *Abies Webbiana*, *Picea Morinda*, *Pseudotsuga taxifolia*, and many other conifers had seriously suffered, and dead wood was already to be seen on many deciduous trees, while the whole damage could not be estimated until later in the season. But, says the writer, as was the case eleven years ago, when even native trees perished, no specimen of the Tulip-tree had suffered, neither an old tree, a sapling in the nursery, or a seedling. Even further north in Germany, he believes, this tree will prove itself hardy, at least in somewhat sheltered situations, if a slight protection be given to its roots while young. The beauty of the tree receives high praise at his hands, particular mention being made of an avenue in Carlsruhe, composed of eighty-one specimens measuring from one metre to nearly two metres in the circumference of their trunks. He deplores the fact that Tulip-trees are not more generally planted in Germany, and says that, in the avenue just mentioned, many naturally produced seedlings are found each year, all of which, when transplanted, prove perfectly hardy. He insistently recommends the end of April or the beginning of May as the best season for planting.

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